

some inferences which might be drawn from these experiments. First, it is here demonstrated that asteroids of eleventh magnitude leave very strong trails on the films of the photographic plates, and probably others down to the thirteenth or fourteenth magnitude could under favourable atmospheric conditions be photographed.

Another inference is that all the asteroids which up to the present time have been discovered, together with those that may exist but are not recorded down to the fourteenth magnitude, could by one astronomer alone be found and accurately charted in the course of two or three years' time.

On the Orbit of 14 (i) Orionis (O. Struve 98). By J. E. Gore.

I have computed the orbit of this binary star by means of the graphical method, and find the following provisional elements :—

Elements of 14 (i) Orionis.

$$\begin{array}{ll} P = 190.48 \text{ years} & \delta = 99^\circ 35' \\ T = 1959.05 \text{ A.D.} & \lambda = 302^\circ 42' \\ e = 0.2465 & a = 1''\cdot22 \\ \gamma = 44^\circ 57' & \mu = -1^\circ 89 \end{array}$$

From these elements we have the following formulæ :—

$$\begin{aligned} (1) \quad u - 14^\circ 12 \sin u &= -1^\circ 89(t - 1959.05) \\ (2) \quad \tan \frac{1}{2}V &= 1.286 \tan \frac{1}{2}u. \\ (3) \quad \tan(\theta_e - 99^\circ 35') &= 0.7077 \tan(V + 302^\circ 42') \\ (4) \quad \rho &= 1.22(1 - 0.2465 \cos u) \cdot \frac{\cos(V + 302^\circ 42')}{\cos(\theta_e - 99^\circ 35')} \end{aligned}$$

where u is the excentric anomaly, and V the true anomaly for the epoch t ; θ_e the required position-angle, and ρ the distance.

The following is a comparison between the recorded measures and the positions computed from the above elements :—

Epoch.	Observer.	θ_o	θ_c	$\theta_o - \theta_c$	ρ_o	ρ_c	$\rho_o - \rho_c$
1844.05	Mädler	258.8	254.44	+4.36	—	1.36	—
1844.53	O. Struve	250.83	253.95	-3.12	1.14	1.35	-0.21
1849.22	"	249.60	248.97	+0.63	0.98	1.33	-0.35
1852.15	Mädler	245.4	245.80	-0.40	—	—	—
1854.82	Dawes	240.9	242.75	-1.85	1.29	1.29	0.00
1859.22	O. Struve	237.80	237.55	+0.25	1.24	1.26	-0.02
1865.98	Dembowski	234.0	228.95	+5.05	1.25	1.20	+0.05

Epoch.	Observer.	θ°	θ°	$\theta^{\circ} - \theta^{\circ}$	ρ°	ρ°	$\rho^{\circ} - \rho^{\circ}$
1867.15	Dembowski	232.1	227.4	+ 4.70	1.28	1.19	0.0 +
1868.14	"	228.5	226.1	+ 2.40	0.05	1.18	31.0 -
1869.19	Dunér	224.6	224.63	0.03	0.95	1.17	- 0.22
1870.81	Dembowski	223.3	222.25	+ 0.05	1.21	1.16	+ 0.05
1870.87	O. Struve	224.13	222.17	+ 1.96	0.09	1.16	- 0.0 -
1873.42	Dembowski	219.2	218.45	+ 0.75	1.26	1.14	+ 0.12
1876.18	Dunér	211.9	214.25	- 2.35	1.22	1.11	+ 0.0 +
1876.88	Dembowski	212.8	213.17	- 0.37	1.11	1.11	0.0 0
1877.18	Schiaparelli	209.9	212.71	- 2.81	0.88	0.80	- 1.0 -
1878.35	Dembowski	208.2	210.8	- 2.60	0.99	1.01	- 1.0 -
1879.10	Hall	205.8	209.61	- 3.81	0.89	0.90	- 0.20
1880.14	Jedrzejewicz	209.1	207.91	- 1.19	1.03	1.08	- 0.05
1881.13	Hall	203.2	206.28	- 3.08	1.03	1.07	- 0.0 -
1881.16	Jedrzejewicz	205.9	206.23	- 0.33	1.08	1.07	+ 0.0 +
1882.14	"	201.3	204.62	- 3.32	1.00	0.96	- 0.0 -
1882.76	Engelmann	203.3	203.53	- 0.23	1.15	1.15	+ 0.0 +
1886.917	Tarrant	196.4	196.15	+ 0.25	1.13	1.04	+ 0.0 +
1886.977	"	195.8	196.11	- 0.31	1.16	1.04	+ 0.12
1887.019	Young	195.5	196.07	- 0.57	0.98	0.94	- 0.0 -

The magnitudes of the components are about 6 and 7. According to the above elements the distance will remain nearly constant during the next fifty years, the angle diminishing to about 107° in the year 1936. As far as I know the orbit has not been previously computed. Some of the measured angles in late years are very discordant. Professor Young's measure this year was communicated to me by private letter.

Observations of the Variable Star S (10) Sagittæ. By J. E. Gore.

The following are my observations of this interesting variable star in the year 1886. They form a continuation of the observations given in the *Monthly Notices* for January 1886.

The comparison stars are, as before :—

					Mag.
11	<i>Sagittæ</i>	...	...	...	5.8
9	<i>Sagittæ</i>	...	...	...	6.6
DM + 16°, 4086		...	...	...	7.0